Date: Fri, 4 Feb 94 16:43:55 PST
From: Info-Hams Mailing List and Newsgroup <info-hams@ucsd.edu>
Errors-To: Info-Hams-Errors@UCSD.Edu
Reply-To: Info-Hams@UCSD.Edu
Precedence: Bulk
Subject: Info-Hams Digest V94 #113
To: Info-Hams

Info-Hams Digest   Fri, 4 Feb 94   Volume 94 : Issue 113

Today's Topics:

Send Replies or notes for publication to: <Info-Hams@UCSD.Edu>
Send subscription requests to: <Info-Hams-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Info-Hams Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/info-hams".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: Fri, 4 Feb 1994 21:25:35 GMT
From: news.sprintlink.net!direct!kg7bk@uunet.uu.net
Subject: "Flexible" 9913 (Was - Re: Coaxial cable)
To: info-hams@ucsd.edu

Steve Bunis SE Southwest Chicago (doc@webrider.central.sun.com) wrote:
: > Some other things to keep in mind about 9913. Remember that you'll need
: > special UHF N connectors if you plan on using the cable for UHF
: > applications.

: Also, regarding the N connectors, at what point do they start making
: a discernible difference? I thought that NMO was supposed to do well

: at least past the 70cm. band. -- Steve Bunis

My dual-band 2x4MAX Comet has an so239 connector on it. Just how bad
is a pl259 connection on UHF? Should I use an N to so239 adapter? I
use 9913 on HF with pl259s and some copper tape.

thanks, Cecil, kg7bk@indirect.com

Date: 3 Feb 1994 12:21:00 GMT
From: ucsnews!sol.ctr.columbia.edu!howland.reston.ans.net!xlink.net!
scsing.switch.ch!swidir.switch.ch!univ-lyon1.fr!elendir@network.ucsd.edu
Subject: A code speed question
To: info-hams@ucsd.edu

 Okay, thanks a lot to everybody. I guess I'll try to set up a practice.
Wouldn't be easy though.

 Hopefully for me, the French exam for the "Full license" (Class E) is only
10 wpm.

 Thanks again.

 Vince.

Date: 3 Feb 1994 15:09:48 GMT
From: ucsnews!sol.ctr.columbia.edu!howland.reston.ans.net!news.moneng.mei.com!
uwm.edu!vixen.cso.uiuc.edu!newsrelay.iastate.edu!news.iastate.edu!
kenman@network.ucsd.edu
Subject: Automotive computers and amateur radios - Help!
To: info-hams@ucsd.edu

In article <2ipc91$893@iris.mbvlab.wpafb.af.mil> engberg@edfue0.ctis.af.mil (Bob
Engberg) writes:
>Mike,
>I once had my Plymouth Reliant die momentarily when I keyed the 2 mtr rig.
>45 watts to a wet 1/4 wave mag mount. No problem when it's dry.
>When I keyed the transmitter, the electronic fuel injection stopped.
>Not a problem if your going down hill, I suppose.
>

When I speak into my 2 mtr HT my electric wheelchair instantly powers up and
moves at full speed (abt 7 mph). It only took once, and some broken
furniture, to remember to shut off my wheelchair before transmitting. 8)

--
Ken Anderson   N0ZEM Kenman@iastate.edu PH: 515.294.8996
126 Soil Tilth Bldg., Iowa State University, Ames, Iowa 50011

Date: Thu, 3 Feb 1994 08:27:50 GMT
From: ucsnews!sol.ctr.columbia.edu!howland.reston.ans.net!darwin.sura.net!rouge!
cfm1471@network.ucsd.edu
Subject: call book typo... sorry
To: info-hams@ucsd.edu

>I made a mistake on my end here, BAD typo! The correct address should be:
>
>cs.buffalo.edu 2000   or 128.205.32.2
>
>again, the word 'callsign' was not needed here. sorry for the trouble.
>
>   73 to all - shawn

Try pc.usl.edu 2000.

Charlie

Date: 3 Feb 1994 15:13:17 GMT
From: ucsnews!sol.ctr.columbia.edu!howland.reston.ans.net!news.moneng.mei.com!
uwm.edu!fnnews.fnal.gov!att-in!news.bu.edu!transfer.stratus.com!sw.stratus.com!
fms@network.ucsd.edu
Subject: CQ NR
To: info-hams@ucsd.edu

brunob@hpldsla.sid.hp.com (Bruno Bienenfeld) writes:
> Just a reminder that yearly Novice Roundup is ON.
> Would appriciate any/all G/A/E level hams to extend there generous help
> and if only for one QSO contribute to the glory of our wonderful hobby.
>
> Yes it can be borring to work at 4wpm but try to remember when you started.
>

Absolutely, get on the air and work the NR! It's a great way to help out
Novices & Techs aspiring to upgrade (that's how I got _my_ General, anyways!).

It's a great practice session for those aspiring Novices & Techs, too.

But for this one poor Advanced who hasn't touched CW in almost 2 years, the code speeds that some of these whiz-kids are working at are just too fast! I only wish I _could_ find somebody working at 4WPM!!! :-) :-)

Oh, one small hint to those of you who work the contest. If you're calling CQ, PLEASE send your callsign more than once! I was listening to one fellow the other night who was sending his CQ's like this:

```
 CQ NR CQ NR CQ NR DE KE4xxx/N K
```

It took me three complete QSOs to finally figure out what his full call was, because he never sent it often enough for me (the fact that he was running at about 12WPM and I can't copy terribly cleanly above 10 didn't help matters much, either :) He worked one person at about the same code speed he was at, one person running down around my speed who was obviously using a straight key and equally obviously going too fast for himself, and one person running at something close to 15WPM. On KE4's next CQ, I finally got the last letters of the call confirmed. BOY am I out of practice on this stuff! :-)

73 de Faith N1JIT

--
Faith M. Senie InterNet: fms@vos.stratus.com
Stratus Computer, Inc. InterNet: fms@hoop.sw.stratus.com
55 Fairbanks Blvd. Pkt Radio: n1jit@wa1phy.ma.usa.na
Marlboro, MA 01752 Phone: (508)460-2632

Curiosity doesn't flourish among the burned-out...

Date: Thu, 3 Feb 1994 15:54:31 GMT
From: netcomsv!netcom.com!greg@decwrl.dec.com
Subject: Field Day Logging Program
To: info-hams@ucsd.edu

In article <9402031354.AA23136@nms1.abb.com> jennings@eng115.rochny.USpra.abb.COM (Tom_Jennings) writes:
>Hello,
>
>Well it's time to start planning for Field Day. It's my job
>to find a good logging program.

ESPN runs the lumberjack championships every so often. You could tape them, but who has time to watch TV on Field Day?

Anyway, an axe or chainsaw works better than a floppy disk, but

isn't it more effective to just shoot a wire over the top. Besides,
it isn't right to chop down a bunch of trees, just to make a
clearing for Field Day. I know it isn't called 'Forest Day,'
but you don't HAVE to have a field.

Greg

Date: Mon, 31 Jan 1994 23:53:55 GMT
From: netcomsv!netcom.com!marcbg@decwrl.dec.com
Subject: Global Alert For All: Jesus is Coming Soon
To: info-hams@ucsd.edu

William Osborne (wosborne@nmsu.edu) wrote:
: Where is the radio to swap or sell?? Why do we have to put up with
: the nonsense in this group?

I believe that Jesus is now on-line, WA5CHRIST. Works 40 and 80 and is
setting up a special events station for Easter (naturally, he's a little
depressed around the season and mentioned something about a banquet - we
all thought it was a bad idea).

Of course, the question we all ask: Why does Jesus have a 5 call?
--
Marc B. Grant   fax 214-231-3998   voice 214-246-1150
marcbg@netcom.com   Amateur Radio N5MEI
marcbg@esy.com   Richardson, TX

Date: Wed, 2 Feb 1994 20:51:27 GMT
From: rit!sunsrvr6!jdc@cs.rochester.edu
Subject: htx-202 or dj-162 ?
To: info-hams@ucsd.edu

In article <2i8rnf$o5n@explorer.clark.net>,
matt roberts <robocop@clark.net> wrote:
>In article <ah301-260194121225@129.228.248.39>,
>Jerry Sy <ah301@yfn.ysu.edu> wrote:
>>I have pretty much narrowed down my choice to these two 2m ht's.
>
>>I'd like to get comments and opinions from people in the net who
>>have actually used both.
>>currently, I am leaning towards the dj-162 because of its wide
>>receive.
>
>The HTX202 is a good radio. It comes with the CTCSS, DTMF squelch, and

>it can store telephone numbers. It has 14 memories, I think.
>
>   Matt Roberts N3GZM

I'll second the motion. The HTX-202 is also more sensitive on receive
than my ICOM-27H, of a late 70's or early 80's vintage. And the price
is right when Radio Shack runs one of their periodic "sales".

73...Jim
N2VNO

Date: 4 Feb 94 13:38:00 GMT
From: news-mail-gateway@ucsd.edu
Subject: ORBS$035.2L.AMSAT
To: info-hams@ucsd.edu

SB KEPS @ AMSAT $ORBS-035.N
2Line Orbital Elements 035.AMSAT

HR AMSAT ORBITAL ELEMENTS FOR AMATEUR SATELLITES IN NASA FORMAT
FROM WA5QGD FORT WORTH,TX February 4, 1994
BID: $ORBS-035.N

DECODE 2-LINE ELSETS WITH THE FOLLOWING KEY:
1 AAAAAU 00 0 0 BBBBB.BBBBBBBB .CCCCCCCC 00000-0 00000-0 0 DDDZ
2 AAAAA EEE.EEEE FFF.FFFF GGGGGGG HHH.HHHH III.IIII JJ.JJJJJJJJKKKKKZ
KEY: A-CATALOGNUM B-EPOCHTIME C-DECAY D-ELSETNUM E-INCLINATION F-RAAN
G-ECCENTRICITY H-ARGPERIGEE I-MNANOM J-MNMOTION K-ORBITNUM Z-CHECKSUM

TO ALL RADIO AMATEURS BT

AO-10
1 14129U 83058B   94026.96316316 -.00000226 00000-0 10000-3 0 2568
2 14129 27.2068 344.5815 6022530 149.7185 266.2880 2.05879387 79879
UO-11
1 14781U 84021B   94032.08509882 .00000402 00000-0 76155-4 0 6614
2 14781 97.7914 53.1385 0012207 350.8426   9.2555 14.69134627530327
RS-10/11
1 18129U 87054A   94032.53118575 .00000050 00000-0 37815-4 0 8585
2 18129 82.9221 69.1201 0013160 45.5265 314.6964 13.72330706331309
AO-13
1 19216U 88051B   94030.92643199 .00000280 00000-0 10000-4 0 8703
2 19216 57.8741 270.6815 7209428 333.8315   3.2375 2.09718964 43137
FO-20
1 20480U 90013C   94031.53669543 -.00000027 00000-0 19778-4 0 6550
2 20480 99.0172 209.2767 0540316 289.1742 65.1641 12.83223743186608

```
AO-21
1 21087U 91006A   94031.03739220  .00000094  00000-0  82657-4 0  4201
2 21087  82.9409 244.1976 0036680 104.7675 255.7549 13.74532587150747
RS-12/13
1 21089U 91007A   94031.70193410  .00000042  00000-0  28589-4 0  6594
2 21089  82.9219 112.6758 0030259 126.1313 234.2652 13.74034091149908
UO-14
1 20437U 90005B   94032.74755041  .00000069  00000-0  43836-4 0  9602
2 20437  98.5970 119.3308 0010282 228.1065 131.9239 14.29820416210231
AO-16
1 20439U 90005D   94032.73834399  .00000056  00000-0  38818-4 0  7616
2 20439  98.6037 120.4137 0010538 229.1624 130.8644 14.29876054210245
DO-17
1 20440U 90005E   94032.21605654  .00000059  00000-0  39911-4 0  7608
2 20440  98.6061 120.1794 0010670 230.1283 129.8974 14.30014080210182
WO-18
1 20441U 90005F   94032.74877680  .00000059  00000-0  39913-4 0  7610
2 20441  98.6045 120.7143 0011238 228.7469 131.2742 14.29990577210260
LO-19
1 20442U 90005G   94032.73595222  .00000060  00000-0  40140-4 0  7604
2 20442  98.6061 120.9273 0011579 227.6391 132.3802 14.30084334210272
UO-22
1 21575U 91050B   94032.20992261  .00000092  00000-0  45713-4 0  4613
2 21575  98.4468 109.3768 0007973 342.8458  17.2467 14.36886367133551
KO-23
1 22077U 92052B   94032.56421641 -.00000037  00000-0  10000-3 0  3565
2 22077  66.0829 203.9397 0009202 321.5390  38.4975 12.86284168 69344
AO-27
1 22825U 93061C   94028.69364623  .00000013  00000-0  23328-4 0  2573
2 22825  98.6656 105.8249 0007962 258.9140 101.1150 14.27603315 17787
IO-26
1 22826U 93061D   94028.75480372  .00000020  00000-0  26215-4 0  2588
2 22826  98.6650 105.9020 0008479 259.3938 100.6287 14.27705864 17792
KO-25
1 22830U 93061H   94027.67578287  .00000027  00000-0  28271-4 0  2598
2 22830  98.5680 103.5736 0010863 227.3626 132.6641 14.28029120 17644
NOAA-9
1 15427U 84123A   94030.85754099  .00000106  00000-0  80549-4 0  6983
2 15427  99.0709  79.6136 0014249 247.4940 112.4724 14.13584243470947
NOAA-10
1 16969U 86073A   94030.87446357  .00000080  00000-0  52487-4 0  5977
2 16969  98.5113  44.0548 0013983  14.1154 346.0414 14.24860838383050
MET-2/17
1 18820U 88005A   94031.88812903  .00000057  00000-0  37729-4 0  2588
2 18820  82.5389  17.0036 0015453 200.0821 159.9741 13.84705936303495
MET-3/2
1 19336U 88064A   94027.46247972  .00000051  00000-0  10000-3 0  2590
2 19336  82.5373  63.2695 0015606 255.3337 104.6056 13.16963718264738
```

```
NOAA-11
1 19531U 88089A   94030.90850576  .00000129  00000-0  94376-4 0  5012
2 19531  99.1598  16.5427 0011803 155.4181 204.7555 14.12954794275834
MET-2/18
1 19851U 89018A   94032.05387033  .00000055  00000-0  36448-4 0  2595
2 19851  82.5189 252.4483 0012906 250.2891 109.6871 13.84356477248859
MET-3/3
1 20305U 89086A   94031.24041489  .00000044  00000-0  10000-3 0  9790
2 20305  82.5524   4.6588 0005865 275.4667  84.5785 13.04422822205046
MET-2/19
1 20670U 90057A   94027.78170716  .00000024  00000-0  79036-5 0  7595
2 20670  82.5487 319.9935 0015537 175.8931 184.2364 13.84187490181198
FY-1/2
1 20788U 90081A   94031.24189156 -.00000218  00000-0 -11642-3 0  8816
2 20788  98.8450  55.7276 0015225  34.8287 325.3871 14.01328583174523
MET-2/20
1 20826U 90086A   94032.06418741  .00000067  00000-0  47107-4 0  7590
2 20826  82.5234 254.2791 0014796  68.6622 291.6123 13.83571908168937
MET-3/4
1 21232U 91030A   94032.12779086  .00000051  00000-0  10000-3 0  6673
2 21232  82.5420 265.7828 0013008 161.7732 198.3861 13.16459852133456
NOAA-12
1 21263U 91032A   94030.88246322  .00000153  00000-0  88168-4 0  9073
2 21263  98.6341  61.5947 0012159 276.6165  83.3630 14.22362615141012
MET-3/5
1 21655U 91056A   94031.52098998  .00000051  00000-0  10000-3 0  6635
2 21655  82.5520 213.2454 0012989 174.8683 185.2566 13.16827699118476
MET-2/21
1 22782U 93055A   94032.21037544  .00000059  00000-0  40822-4 0  2590
2 22782  82.5501 314.1919 0020900 247.4078 112.4878 13.82998426 21292
MIR
1 16609U 86017A   94031.87716614  .00012295  00000-0  15584-3 0  1202
2 16609  51.6174 150.3786 0004081 270.2389  89.8133 15.59884699454786
HUBBLE
1 20580U 90037B   94030.88685201  .00001105  00000-0  95570-4 0  4327
2 20580  28.4686  37.8356 0006388  94.2779 265.8536 14.90449228  8888
GRO
1 21225U 91027B   94031.58821780  .00005286  00000-0  12231-3 0   609
2 21225  28.4626  99.8409 0003960 118.3199 241.7802 15.39951744 35854
UARS
1 21701U 91063B   94030.49811085 -.00001766  00000-0 -13392-3 0  4686
2 21701  56.9857 350.7923 0004837 107.9039 252.2522 14.96284426130328
POSAT
1 22829U 93061G   94032.79331938  .00000070  00000-0  46180-4 0  2514
2 22829  98.6598 109.9146 0009385 231.2681 128.7662 14.28000972 18372
/EX

------------------------------
```

Date: 4 Feb 94 16:00:24 GMT
From: news-mail-gateway@ucsd.edu
Subject: SAREX Element Set for 2/4/94
To: info-hams@ucsd.edu

SB SAREX @ AMSAT $STS-60.006
STS-60 Element Set for 2/4/94

The official SAREX element set for today will be GSFC-003. Gil Carman, WA5NOM reports that the predictions using GSFC-003 are 9 seconds later than with JSC-004. Element set GSFC-003, developed by Ron Parise, WA4SIR, and shown below, is consistent with the current orbiter state vector.

```
 1 22977U 94006A   94 35.13981770 0.00000202  00000-0  58718-5 0    37
 2 22977  56.9857 213.2731 0008535 263.0773  96.9324 15.72145611   115

 Satellite: STS-60
 Catalog number: 22977
 Epoch time:      94035.13981770         (04 FEB 94   03:21:20.25 UTC)
 Element set:     GSFC-003
 Inclination:       56.9857 deg
 RA of node:       213.2731 deg          Space Shuttle Flight STS-60
 Eccentricity:    0.0008535                  Keplerian Elements
 Arg of perigee:   263.0773 deg
 Mean anomaly:      96.9324 deg
 Mean motion:   15.72145611 rev/day      Semi-major Axis: 6730.8981 Km
 Decay rate:       0.20E-05 rev/day*2    Apogee  Alt:        358.25 Km
 Epoch rev:              11              Perigee Alt:        346.77 Km


 NOTE - This element set is based on NORAD element set # 003.
        The spacecraft has been propagated to the next ascending
        node, and the orbit number has been adjusted to bring it
        into agreement with the NASA numbering convention.
```

Submitted by Frank H. Bauer, KA3HDO, for the SAREX Working Group

/EX

Date: Fri, 4 Feb 94 23:05:23 GMT
From: agate!howland.reston.ans.net!newsserver.jvnc.net!a3bee2.radnet.com!cyphyn!randy@network.ucsd.edu
Subject: simple ohm meter

To: info-hams@ucsd.edu

The hardest part is redoing the meter scale, so we'll show that first

METER SCALE for ohms

0 - 15 original scale on the meter it self, meter being a 50 ua to 1ma job

ohms

0 = 0
1 = o.7
2 = 1.47
3 = 2.5
4 = 3.65
5 = 5
6 = 6.7
7 = 8.8
midscale = 10 *
8 = 12.5
9 = 15
10= 20
11= 27.5
12= 40
13= 68
14= 145
15= infinity

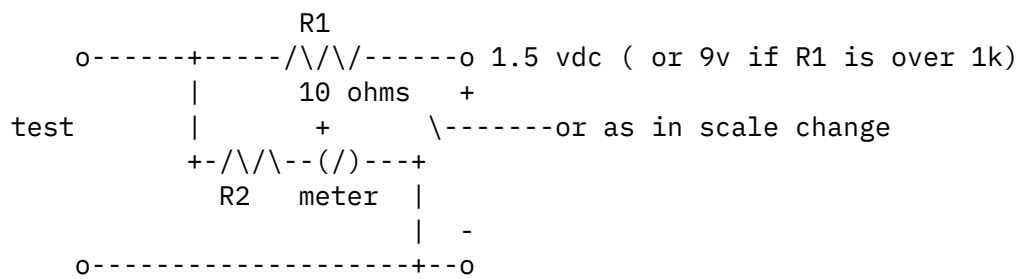
Scale changing:

To get K ohms, change R1 to be 1 k

To get 100's K ohms change R1 to be 100k and use a 9 volt battery, and meter to be a 50 or 100ua job

* Same as R1

ckt to use:



R2...adj so meter reads infinity with open ckt at test

That can be your 'OHMS ADJUST' .... you will also need an on off switch to not run down the battery, when not in use.

This ckt...as shown for reading LOW ohms, is one WB1FNA (silent key) used to bring along on ham fests to on-the-spot check out transformers and tube filaments!

--
Randy KA1UNW
randy@192.153.4.200

If you get a shock while
servicing your equipment,
DON'T JUMP!
You might break an expensive tube!

"Works for me!"
-Pete Keyes

Date: 4 Feb 94 06:29:13 GMT
From: ogicse!news.tek.com!cascade.ens.tek.com!not-for-mail@network.ucsd.edu
To: info-hams@ucsd.edu

References <2i8rnf$o5n@explorer.clark.net>, <CKM79r.45H@sunsrvr6.cci.com>,
<2ire53$o2g@explorer.clark.net>
Subject : Re: Vertical Antennas

At the risk of starting a flame war...

In article <2ip6he$933@cascade.ens.tek.com> t1terryb@cascade.ens.tek.com (Terry Burge) writes:
>>Just for the record, I will state it again. A ground plane antenna has higher
>>gain than a vertical dipole. A quarter wave ground plane has a gain of some-
>>where around 6 db over isotropic where a dipole has a gain of 2.14 db over
>>isotropic at it's theoritical best. Gain in an antenna is directly related
>>to it's RF pattern. I believe the reason a ground plane has more gain than
>>a vertical dipole is because it has a more concentraited pattern like an
>>elongated tear drop as opposed to the fat donut shape of a dipole.

>Repeating false statements makes them no less false. A 1/4 wave vertical
>over a *perfect* groundplane has *exactly* the same gain and pattern as
>a 1/2 wave vertical. But alas, there are no perfect groundplanes in the
>real world, so all real 1/4 wave verticals have less gain than 1/2 wave
>verticals because of losses in the imperfect current mirror.

>> As to weather an R5 or R7 are vetical dipoles or half wave verticals,
>>I am no expert on them. I have never used one. But from everything I have
>>read about vertical antennas, they must have a ground plane to mimic the
>>other have of the antenna. Some systems utilize the shield of the coax cut
>>to a certain length to do this I believe...seems some VHF/UHF antennas lend
>>themselves to this. Other than that, ground rods would help as would sea water
>>too.

>A 1/2 wave antenna, it doesn't matter if it's fed in the middle or from
>the end, doesn't require a current mirror, so it doesn't require a groundplane
>or any other connection to ground. It's a resonant structure by itself,
>there is no "other half" required. On the other hand, a 1/4 wave vertical
>is self-resonant at *twice* the design frequency in the absence of a current

>mirroring groundplane. So it must have a groundplane to function as a 1/4
>wave vertical antenna at the design frequency.

>> It is true that a half wave vertical has more gain than a 1/4 wave
>>vertical.

>What? You just stated otherwise above. Make up your mind.

No I didn't, I said Half Wave Vertical, not dipole. You are the one who said there is no differance in gain weather it is fed in the middle or at the end. Let me state it again...for vertical antennas, a half wave vertical has more gain than a quarter wave vertical, a 5/8 wave has more gain still, a 3/4 wave has more yet, and so on...But how does the gain change if fed from the center or off center like a Zepp (don't I remember something about them having a gain of 1.66 over a dipole or something like that...probably wrong).

But, we have to remember for a vertical antenna at given frequency, as the length of the radiating element increases the angle of radiation rises. And since it is such
a theoretical nightmare to compute real world RF patterns we talk about theoretical
perfect situations over perfect grounds and then compare those to the real world ones
in the ARRL Antenna Handbook and other such material. I don't know too many Hams who
can setup an acre of land with 120 radials spaced equaly around in a circle, seed the
ground with the proper amound of rock salt, and do the rest to make as perfect of ground as possible (this is suppose to work for Yagi/Quad beams on towers too). Wish
I had the place to do this...or is it 100 acres?

>>It is not true that a 5/8 wave vertical is the highest gain vertical.
>>What it is is the best compromise for the gain and angle of radiation. As the
>>vertical element, or any element for that matter, gets longer for a given
>>wavelength the major lobe/lobes eminating from the antenna start skeewing(sp)
>>towards the far end of the antenna. This is why long wire antennas several wave
>>length long at a given frequency are directional antennas. And, why Rhombic
>>antennas are a combination of this characteristic.

>Well that's almost true anyway. The 5/8 wave vertical over real
>ground has the best gain perpendicular to it's axis of any *simple*
>vertical antenna. Stacked and phased sections can have more gain
>toward the horizon. Really long antennas develop minor lobes and
>have their power directed in multiple undesired directions.
Gary

Gary, I agree that stacked dipoles develope more gain than single ones. And

their radiation pattern is perpendicular to the direction they are setup, normally in a vertical configuration although I believe a collinear array is an example of horizontally polarized broadside dipole array with stubs to bring their patterns into phase and combine to make a higher gain signal. (now how is that for a run on sentence). But, on page 8-32 of the 1991 ARRL Antenna Handbook they list the theoretical power gain of various 1/2 wavelength collinear arrays...

' 2 collinear elements---1.6 db
3 collinear elements---3.1 db
4 collinear elements---4.2 db '
ARRL Antenna Handbook, 16th Edition

On page 8-24 of the same book is listed a 3 element, 1/4 wavelength vertical array in a line, 1/2 wavelength appart, each being fed with 3/4 wavelength coax phasing line to bring them into phase. It is not clear weather this is a broadside of end fire (think that is the correct term) array. Gain figures are states as follows...

' If the element currents are equal, the resulting pattern has a foward gain of 5.7 db (for lossless elements) ... If the currents are tapered in a binomial coefficient 1:2:1 ratio (twice the current in the center element as the two end elements), the gain drops to 5.2 db, the main lobes widen, and the side lobes disappear. ... '
ARRL Antenna Handbook, 16th Edition

This seems to indicate that it is possible to get more gain from 1/4 wavelength verticals than from 1/2 wavelength elements in a vertical or horizontal pattern. Hum... I would be the first to admit antenna theory makes my head spin sometimes but when the ARRL says a 4 element horizontal colliniear array has less gain that a 3 element 1/4 wave vertical array, I tend to believe it. I may not understand all the wherefores and as such but I tend to believe them.

On page 2-23 of the same text...

' ...An infinitely thin 1/2 wavelength dipole has a theoretical gain of 2.14 db over an isotropic radiator (dBi)... '
ARRL Antenna Handbook, 16th Edition

And I know that the thinner the dipole the higher the Q of the resonant circuit, so an "infinitely thin" dipole has the highest Q. In other words, the highest gain. This is why a Quagi, quad driven

element and reflector with dipole directors has more gain theoretically than a quad with the same
boom length. (I have a love/hate relationship with quads) Higher Q elements.

I haven't been able to find a gain figure for a single 1/4 wavelength vertical in the ARRL Antenna
Handbook. Looking through the Amateur Radio Supply catolog(Winter 93/94) it is easy to see how gain
 figures vary.
Having had some experience with Cushcraft antennas and believing they do their homework, I quote
some of their specs...
 ' Four Pole Array ... (stacked dipole for VHF/UHF ranges)...
  AFM-4DA...144-148 (MHz)... Gain, dBd ... (over a dipole) ... 9 Offset(?)...6 Omni...'
   (page 107)
   (that is a 4 dipole stacked array with 6 db gain over a dipole...sounds like
    a bit of difference from the ARRL Handbook figures...4.2 db, so much
     for homework)

On page 94 are the advertisments for the R5 and R7...
 ' R5...3dBi...17(feet)... R7...3dBi...22.5(feet)...(both)halfwave '

On page 125 is the Butternut advertisment...
 ' ...HF-6VX...26(feet)... ' (no gain stated for their verticals)

I have also had High Gain 18AVQ(WB)...almost worthless, and several home brew verticals like 1/4 wavelength
20 meter ground plane at 60 feet, a 5/8 wavelength 2 meter vertical ground plane, etc.

Being I am a DX'er at heart I will take the Butternut and put up with the radials on my roof...perfect
ground, 1/2 wavelength above ground, OR NOT! The one thing I can see the R5/R7 having over a Butternut is
easy of setup. Of course, we could say the easier an antenna is to setup, the less effective it is. Terry's
rule number 1 for Quad antennas (and maybe others too).

Take it for what it is worth.

Terry Burge
KI7M

1983 CQWW Phone top W7, Single Op, All Band. (toot, toot)

End of Info-Hams Digest V94 #113
****
****